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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/853,037	05/11/2001	Michael D. Lock	40175	5096

7590 06/04/2004
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EXAMINER

ALAVI, AMIR

ART UNIT PAPER NUMBER

2621

DATE MAILED: 06/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/853,037

Applicant(s)

LOCK ET AL.

Examiner

Amir Alavi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 May 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 12-21 and 25-33 is/are rejected.
- 7) ☒ Claim(s) 6-11 and 22-24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5.6</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

- The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- Claims 1-5, 12-21 and 25-33 are rejected under 35 U.S.C. 103(a) as being obvious over Lock (US 6,014,904) in view of Lu (US 6,317,517 B1).
- While Lock does qualify as prior art under 35 U.S.C. 102(e), Lock also qualifies as prior art under 35 U.S.C 102(a), and therefore cannot be excluded from consideration under the provisions of 35 USC 103(c).

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Regarding claim 1, Lock, discloses: generating a two-dimensional histogram (Please note, figures 3A and 3B, in correlation to column 3, lines 63-67 and column 4, lines 1-7. As shown in figure 3B, a histogram having two dimensions) characterized by a grid having an x-axis and a y-axis (As shown in figure 3B, having an x-axis and a y-axis) and a selected number of bins in the x-direction and a selected number of bins in the y-direction (As shown in figure 3B, the histogram is consisted of bins in x and y directions), said data comprising n pairs of points (x_i, y_i) , $i=1, \dots, n$ (As shown in figure 3A, the data is consisted of many points, that is, n points), said histogram comprising fewer bins than said points (As seen in the comparison of figures 3A and 3B, the number of bins of the histogram in figure 3B is less than the number of data points in figure 3A) and identifying at least one cluster in said data (Please note, column 3, lines 64-65).

However, Lock, does not specifically disclose wherein determining a density estimate.

On the other hand, Lu, in the same field of endeavor discloses wherein determining a density estimate (Please note, column 3, line 39).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize this density estimation of Lu in Lock's invention, because as Lu, on column 3, lines 37-38, discloses that such utilization causes all components to be treated uniformly and democratically and without any bias.

Regarding claim 2, Lu, discloses, wherein said determining step comprises generating a smoothed density estimate. (Please note, column 3, line 40. As indicated a smoothing parameter h).

Regarding claim 3, Lu, discloses, wherein said smoothed density estimate is generated using a Gaussian Kernel estimator algorithm. (Please note, column 3, line 37. As indicted the utilization of a Gaussian Kernel).

Regarding claim 4, Lock, discloses wherein a boundary around said at least one cluster. (Please note, figure 1, in correlation to column 4, lines 2-4. As indicated a geometric boundary on the two-dimensional scatter plot so as to enclose a group of the displayed particles in a data cluster).

Regarding claim 5, Lock, discloses wherein said boundary is a polygon characterized by a plurality of vertices, and further comprising processing said boundary to reduce the number of said vertices while enclosing approximately the same area within said boundary. (Please note, figure 1, in correlation to column 4, lines 5-7. As indicated the boundary having a polygonal shape defined by a plurality of vertices about at least one cell cluster created by building at least one histogram from cross sections of the two-dimensional scatter plot).

Regarding claim 12, arguments analogous to those presented for claims 1 and 4 are applicable.

Regarding claims 13-14, arguments analogous to those presented for claims 2-3, respectively, are applicable.

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Regarding claim 15, arguments analogous to those presented for claim 5 are applicable.

Regarding claim 16, arguments analogous to those presented for claim 1 are applicable.

Regarding claims 17-21, arguments analogous to those presented for claims 1-5, respectively, are applicable.

Regarding claim 25, arguments analogous to those presented for claims 1 and 4 are applicable.

Regarding claims 26-27, arguments analogous to those presented for claims 2-3, respectively, are applicable.

Regarding claim 28, arguments analogous to those presented for claim 1 are applicable.

Regarding claim 29, arguments analogous to those presented for claims 1 and 4 are applicable.

Regarding claims 30-31, arguments analogous to those presented for claims 2-3, respectively, are applicable.

Regarding claims 32, arguments analogous to those presented for claim 5 are applicable.

Regarding claims 33, arguments analogous to those presented for claim 1 are applicable.

Allowable Subject Matter

- Claims 6-11 and 22-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
- The following is a statement of reasons for the indication of allowable subject matter: None of the prior art disclose or fairly suggest wherein said data comprises a plurality of clusters and said density estimate is characterized by a three-dimensional plot depicting peaks and valleys, said identifying step comprising locating valleys in said density estimate and identifying each of said plurality of clusters as being separated from the others by at least one of said valleys.

Other prior art cited

- The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Price et al. (US 5,548,661) is pertinent as teaching operator independent image cytometer.

Resnick et al. (US 4,207,554) is pertinent as teaching method and apparatus for automated classification and analysis of cells.

Cabib et al. (US 5,991,028) is pertinent as teaching spectral bio-imaging methods for cell classification.

Pressman et al. (US 6,148,096) is pertinent as teaching specimen preview and inspection system.

Dunlay et al. (US 6,620,591 B1) is pertinent as teaching system for cell-based screening.

Dietz et al. (US 6,687,395 B1) is pertinent as teaching system for micro-volume laser scanning cytometry.

Kuan et al. (US 5,757,954) is pertinent as teaching field prioritization apparatus and method.

McNamara et al. (US 6,007,996) is pertinent as teaching in SITU method of analyzing cells.

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Contact Information

- Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Amir Alavi whose telephone number is (703) 306-5913.
- The Examiner can normally be reached on Monday through Thursday from 8:00 a.m. to 6:30 p.m. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Léo Boudreau, can be reached at (703) 305-4706.

Any response to this action should be mailed to:

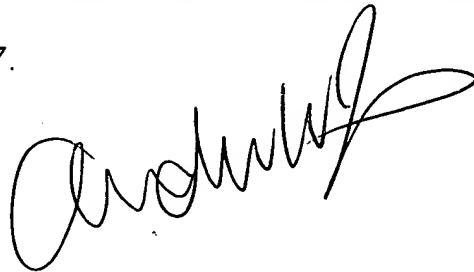
Assistant Commissioner for Patents

Washington, D.C. 20231

Or faxed to:

(703) 872-9306, ("draft" or "informal" communications should be clearly labeled to expedite delivery to Examiner)

Hand delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist). Any inquiry of a general nature or relating to the status of this application should be directed to the T.C. Customer Service Office whose telephone number is (703) 306-0377.



AA
Group Art Unit 2621
28 May 2004

ANDREW W. JOHNS
PRIMARY EXAMINER